

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A mixer design comprising: of
a pair of differential RF inputs connected to the source terminals of the a first set
of differential two switches wherein source terminals of the first set of differential switches are
configured to couple to a differential RF input signal,
wherein drain terminals of the first set of differential switches whose
drains are connected to the source terminals of a the second set of differential two
switches,
wherein drain terminals of the second set of differential switches comprise
whose drains are the mixer outputs;
the controlling gates wherein gate terminals of the first set of differential
switches and the second set of differential switches are connected to the differential local
oscillator differential sources that are phase shifted from each other, and;
wherein each of the first and the second sets of differential switches
comprises comprising of a pair of complementary gate-controlled transistors in a
transmission gate configuration.
2. (Previously Presented) The mixer of claim 1 wherein there are three or more sets of
switches connected in series.
3. (Previously Presented) The mixer of claim 1 wherein the switches are based on FET
transistors.

4. (Previously Presented) The mixer of claim 1 wherein the switches are based on GaAs transistors.

5. (Previously Presented) The mixer of claim 1 wherein the switches are based on MOS transistors.

6. (Previously Presented) The mixer of claim 1 wherein the switches are single gate-controlled transistors.

7. (Currently Amended) The mixer of claim 1 wherein the gate terminals for the first set of differential switches ~~switch-gates~~ are connected to a differential ~~the~~ in-phase local oscillator signals and the gate terminals for the second set of differential switches ~~switch-gates~~ are connected to a differential ~~the~~ quadrature-phase local oscillator signals.

8. (Currently Amended) The mixer of claim 1 wherein the gate terminals for the first set of differential switches ~~switch-gates~~ are connected to a differential ~~the~~ quadrature-phase local oscillator signals and the second set of differential switches ~~switch-gates~~ are connected to ~~the~~ a differential in-phase local oscillator signals.

9. (Currently Amended) The mixers of claims 1-8, wherein the mixer comprises a reversible mixer configuration, wherein the input and output terminal connections are reversible to be used to reverse the said mixer operations by reversing the inputs and outputs.

10-18. (Canceled)